DOCUMENT RESUME

ED 114 191 PS 008 150

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TITLE Person Perception and Verbal Labeling: The Development of Social Labels.
INSTITUTION Educational Testing Service, Princeton, N.J.
SPONS AGENCY National Inst. of Mental Health (DHEW), Rockville, Md.
PUB DATE Apr 75
NOTE 14p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (Denver, Colorado, April 10-13, 1975)

EDRS PRICE MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS Age Differences; *Cognitive Development; Fathers; Infancy; *Infants; *Language Development; Mothers; Pictorial Stimuli; Sex Differences; *Social Behavior; *Verbal Development
IDENTIFIERS *Social Labels

ABSTRACT

This study examined the social labels which are first used by infants, social differentiation on the basis of labeling behavior, and overgeneralization of social labels. Subjects were 81 infants from 9 to 36 months of age. The 9- to 24-month-olds were shown slides of themselves, their mothers, their fathers, and unfamiliar children, babies, and adults. The mother pointed to each slide and asked "Who is that?" The 30- and 36-month-olds were shown the same classes of persons but saw pictures mounted in a photograph album. The experimenter pointed to each picture and asked "Who is that?" Results indicated that infants were more likely to label their father's than their mother's picture and that they did so earlier and more accurately. The data also suggested that: (1) the child uses a word to represent several perceptual features of social objects; and (2) overgeneralization may occur when there are not enough labels available for all of the child's perceptual categories. Since the children in this study overgeneralized labels in an age- and sex-appropriate manner, their social labels appear to be a reflection of the way in which they categorize the social world. (JMB)

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Person Perception and Verbal Labeling: The Development of Social Labels[1]

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Introduction

"Mommy," "daddy," "baby." These are some of the first words to enter a child's vocabulary. Note that they refer to social rather than nonsocial objects. Mothers and early language investigators report that variants of baby, mommy, and daddy appear very early, although the order in which they appear and their developmental progression has never been studied. Therefore, we are interested in exploring the acquisition of social labels.

The acquisition of social labels involves both an ability to discriminate at least some classes of people and an ability to attach meanings to the social labels. The first ability has to do with how infants perceive and categorize their social world. We have previously suggested that the infant attempts to understand and to categorize his social world prior to the onset of speech (Lewis & Brooks, 1975).

Recent research supports this contention, as infants in the first year of life differentiate between persons on the basis of size, facial feature, gender, and familiarity cues. In particular, infants under a year of age have been shown to respond differentially to the approach of unfamiliar adults and children (Greenberg, Hillman, & Grice, 1973; Lewis & Brooks, 1974), of different-sized adults (Brooks & Lewis, 1975), and of male and female adults (Benjamin, 1961; Morgan & Ricciuti, 1969; Scarr & Salapatek, 1970). When presented with pictures rather than live persons, young infants also do surprisingly well, as they respond differentially to pictures of babies and adults (Brooks & Lewis, 1974; Fagan, 1972; Lewis & Brooks, 1975), to male

and female adults (Fagan, 1972), and to their own mothers and unfamiliar adults (Brooks & Lewis, 1974; Fitzgerald, 1968; Lewis & Brooks, 1974).

Although social perception studies typically use measures of fixation and affect, we suspect that labeling behavior is also used differentially. At the same time that perceptual categorization changes, so do the meanings attached to children's words. That is, children's words often mean different things at different ages and do not necessarily correspond with their ability to make perceptual discriminations. For example, observations of children in a day care center suggest that infants often call the caregiver "mommy" even though they have no difficulty differentiating between their mother and other caregivers. This may be due to overextension of the label to include all caregivers or may be due to the lack of a label to represent caregiver other than mother. Overextension of labels gradually disappears as more distinguishing features are attached to them (see Clark, 1973) or as more labels are acquired. If features are added in a regular manner, then their acquisition may give us clues as to the salience of certain perceptual features of persons. For example, the use of the label "daddy" may be overextended on the basis of age, sex, or familiarity. Are infants more likely to use the daddy label for pictures of children or adults (overextension on the basis of age), males or females (of sex), or familiar or unfamiliar persons (of familiarity)?

Thus, a series of studies were undertaken in order to see which social labels are first used by infants, to examine social differentiation on the basis of labeling behavior, and to explore the overgeneralization of social labels. We have observed infants' spontaneous and elicited utterances to pictures of various persons as well as their understanding of labels. Today we will only report the data on elicited verbal labeling.

Experimental Design and Procedure

Eighty-one infants from eight age groups were seen; these groups are 9, 12, 15, 18, 21, 24, 30 and 36 months of age. There were approximately 10 infants in each group and there were equal numbers of males and females in each group. The 9- to 24-month-old infants were shown ten different 35 mm colored slides of themselves, their mothers, and their fathers as well as of unfamiliar children (5-year-olds), babies (the same age as themselves), and adults (of parenting age). Only the upper shoulder and head of each person was photographed with light intensity and facial expression held constant. Dress, hair length, and eye color were not controlled.

Infants were seated by their mothers in front of a screen upon which the slides were projected. When each slide appeared, the mother pointed and asked "Who is that?" The mothers were instructed not to label the pictures or to correct their children. Each slide was presented for 15 seconds with a 5-second intertrial interval. Order of presentation was counterbalanced across subjects.

A different procedure was used with the 30- and 36-month-olds who were shown the same classes of persons as the younger infants (with the exception of their father), but saw pictures rather than slides. The pictures were taken with a Big Shot Polaroid camera and were only of the head and shoulder region. The pictures were mounted in a photograph album, one to a page. The experimenter, seated next to the child, pointed to each picture while asking the infant "Who is that?"

Results

Although there were a great number of comparisons which could be made, we will concentrate on those concerning the familiarity-unfamiliarity dimension.

The labels used for the father and adult male stranger, the mother and adult female stranger, and the self and baby stranger will be examined. The age- and sex-appropriateness of the labels applied to these pictures will also be explored.

Frequency with Which Pictures Were Labeled

As can be seen in the first figure, there was a general increase in labeling behavior with age. None of the 9- or 12-month-olds uttered any labels, while approximately one-half of the 15- and 18-month-olds did so. By 21 months of age, 90% of the infants labeled at least one of the pictures.

Verbal Labels Applied to the Picture of Father and Adult Male Stranger

The father comparison will be discussed first since we found, quite unexpectedly, that the picture of the father was labeled most frequently and earliest. All of the verbal infants labeled their father's picture and all of them labeled it correctly. The label "daddy" is therefore the earliest label used by our infants and is universally applied to the picture of father. In fact, of the five labels uttered by the 15-month-olds, four were the label "daddy."

Infants were much less likely to label the picture of the adult male. It was never labeled by the 9- to 15-month-olds and was labeled by one-third to two-thirds of the 18- to 24-month-olds. What types of labels were applied to the adult male stranger? "Daddy" (or some variant) was the most predominant label. It was first used at 18 months, which is three months after it was used to label the picture of the father. All 18-month-olds who labeled the adult male picture labeled it "Daddy." The older infants sometimes modified the label daddy, saying "a daddy," "baby's daddy," etc. The incidence of

modified "daddy" labels increased while the incidence of unmodified "daddy" labels decreased with age. Other appropriate labels include proper names and "man." Proper names were used twice by two 24-month-olds; both instances were age- and sex-appropriate. "Man" did not appear until 30 months of age and was used by half the 36-month-olds. There were few age- and sex-inappropriate labels given to the adult male picture and only one to the father.

If the infants were using the "daddy" label for the picture of the adult male and their father, did they respond differently to the two? The majority of the 15- to 24-month-old infants who received both father and adult male conditions did respond differently to the pictures of father and adult male either by only labeling the picture of the father or by labeling them differently. Most of the infants only labeled the picture of the father.

The "Daddy" label itself was used age appropriately almost universally. In fact, the only incidences of age-inappropriate use of the label "Daddy" were at 18 months. (Remember that this is the first age where we see any use of "Daddy" for other than the subject's father.) Two 18-month-olds used the label age-inappropriately, applying it to the pictures of babies, and they both did so more than once.

Of those who labeled a sex-inappropriate stimulus "Daddy," about half used the label for the pictures of their own mothers. This may indicate a generalization utilizing not the age and gender features, but perhaps features of age and familiarity or parenthood. Some mothers did report that their infants used "Daddy" for both parents.

Verbal Labels Applied to Pictures of Mother and Adult Female Stranger

Much to our surprise, the picture of the mother was less likely to be labeled or to be labeled correctly that the picture of the father. Labeling the mother picture was universal by 18 months of age, although correct verbal labeling was universal by 24 months of age. Of the five infants younger than 24 months who labeled their mother's pictures incorrectly, three called her "daddy," one said "baby," and one used a variant of grandmother. Thus, 80% were familiar referents.

What about the labels given to the adult females? Fewer infants used the label "mommy" for the adult female than had used "daddy" for adult males. The adult females were called "mommy" only twice, surprisingly by the 36-month-olds. The use of a modifier such as "a mommy" appeared at 24 months of age.

Proper names were used infrequently. The label "lady" appeared at 30 months of age. Recall that the label "man" also appeared at this time. No infant used the label "woman." Finally, eight labels were inappropriate; five were age-inappropriate, one sex-inappropriate, and two incorrect familiar referents. Thus in contrast to the "Daddy" label, the "Mommy" label was not used sex-inappropriately.

Verbal Labels Applied to Pictures of Self and Unfamiliar Baby Pictures

The picture of the self was labeled less frequently than the other two familiar pictures. The picture of the self was not labeled until 18 months of age and was not labeled by all the infants until 36 months of age. The label "baby" was used first at 18 months. Proper names were not used until 21 months of age when the "baby" label was dropped. By 24 months, all self reference involved the child's proper name. Personal pronouns were not used until 30 months of age; 20% of the verbal subjects used personal pronouns. By 36 months, nearly all infants labeled their own pictures using either "me" or their own proper names.

The use of the subject's own name to label stimuli representing people other than the subject appeared at 21 months, along with the first use of the subject's own name for himself. The use of the proper name was always sex-appropriate and was never applied to adults. At 24 months, only one child used his proper name for a stimulus other than his own picture. He used it for a same-age, same-sex baby. At 30 months, two subjects used their own name, one for a same-sex, same-age baby and one for a same-sex, 5-year-old child. At 36 months, four babies used their own names for same-sex others. One used it for a same-age baby, while three used it for an older child.

Discussion

Perhaps the most interesting, and certainly the most surprising, finding of our study concerns the labeling of the pictures of mother and father. Infants were more likely to label their father's than their mother's picture and did so earlier and more accurately. There are no other studies to support or refute this finding. To further investigate this result, the mothers were asked what social label (or labels) first appeared and when they appeared. Mothers of the verbal 15- and 18-month-olds reported that indeed the label "daddy" preceded that of "mommy;" several mothers also added that they were surprised and somewhat disappointed by this. In addition, all of the 15- to 24-month-old infants were likely to look at their father's picture longer than their mother's. Thus, there are several sources of evidence within our data which complement the earlier labeling of father.

What accounts for this difference? One possible explanation involves the level of abstraction required before social labeling can occur. Perhaps a certain amount of distance between the infant and social object facilitates labeling in the just-verbal infant. Such distancing might be of a cognitive

or physical form. Fathers may be more "abstract" due to their absences during the infant's waking hours and to their lack of involvement with caregiving. An alternative explanation involves the infant's actual experience with social labels. It is likely that the infant hears the mother labeling the father more often than the reverse. The father may be referred to many times during the day, while the mother is referred to only after the father arrives home from work.

If either of these explanations is true, then we would expect infants who have more direct experience with their father (who would be labeling the mother) or less contact with their mother (who becomes more distant and hence more abstract) to label the pictures of mother earlier. Recall that only four 15- to 18-month-old infants labeled the picture of the mother correctly. Of the four, two of their fathers were graduate students, one of their mothers worked, and one had three teen-aged siblings. These infants were likely to be left in the company of others and to hear the mother referred to. Although highly tentative, these data are suggestive.

For both the "mommy" and the "daddy" labels, generalizations tended to be age- and sex-appropriate. Generalizations, however, were preceded by a period of specific use of the label. Thus, there seems to be a pattern of specific label use, followed by generalization, followed by specific use. That is, use of the label "daddy" was limited to the subject's father at first, then generalized to include adult males, then refined through the use of modifiers so that "daddy" was used for the subject's own father. This differs somewhat from Clark's Semantic Features Analysis which predicts initial overextended application of a word followed by more specific use as the child's own definition is refined. There may well be different patterns of

development for social and other labels. From a concept attainment point of view, these data strongly support Werner's (1961) hypothesized development sequence.

Self labeling follows a different pattern than that of mother and father labeling in terms of generalization. A specific self-reference must use the pronoun "me" or the subject's own name, and proper name usage began later than usage of "mommy" and "daddy." The first label of self reference was "baby." Use of "baby" to label the picture of self started at 18 months and began to drop out quickly, as use of the subject's own proper name began at 21 months. The pronominal self reference was first seen at 30 months, and by 36 months most infants were using either their own name or "me" to label their own picture. Interestingly, infants at 36 months began generalizing their own name or "me" to refer to an older child. This may reflect a change in self image, as 3-year-olds may be beginning to consider themselves as children rather than babies.

The infant's use of social labels seems to reflect the infant's perceptions of his social world and to provide us with information about the infant's cognitive structures. We suggest that perceptual features and cognitions exist prior to the child's articulation of them. In addition, our data suggest that (1) the child uses a word to represent not just one but several perceptual features of social objects and (2) overgeneralization may occur when there are not enough labels available for all of the child's perceptual categories. The children did not overgeneralize labels unsystematically, but used them in an age- and sex-appropriate manner. Thus, children's social labels are a reflection of the way in which the child categorizes the social world, categories which involve age, gender, and familiarity.

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Footnote

[1]A version of this paper was presented at both the Society for Research in Child Development meetings, Denver, April 1975 and the Eastern Psychological Association meetings, New York City, April 1975. The EPA paper was delivered by Christine Brim who was also responsible for data collection. Linda Michalson is to be thanked for her useful comments and criticisms as well as for collecting data on a pilot study. This work was supported by a National Institute of Mental Health grant number 1 R01 MH24849-02.

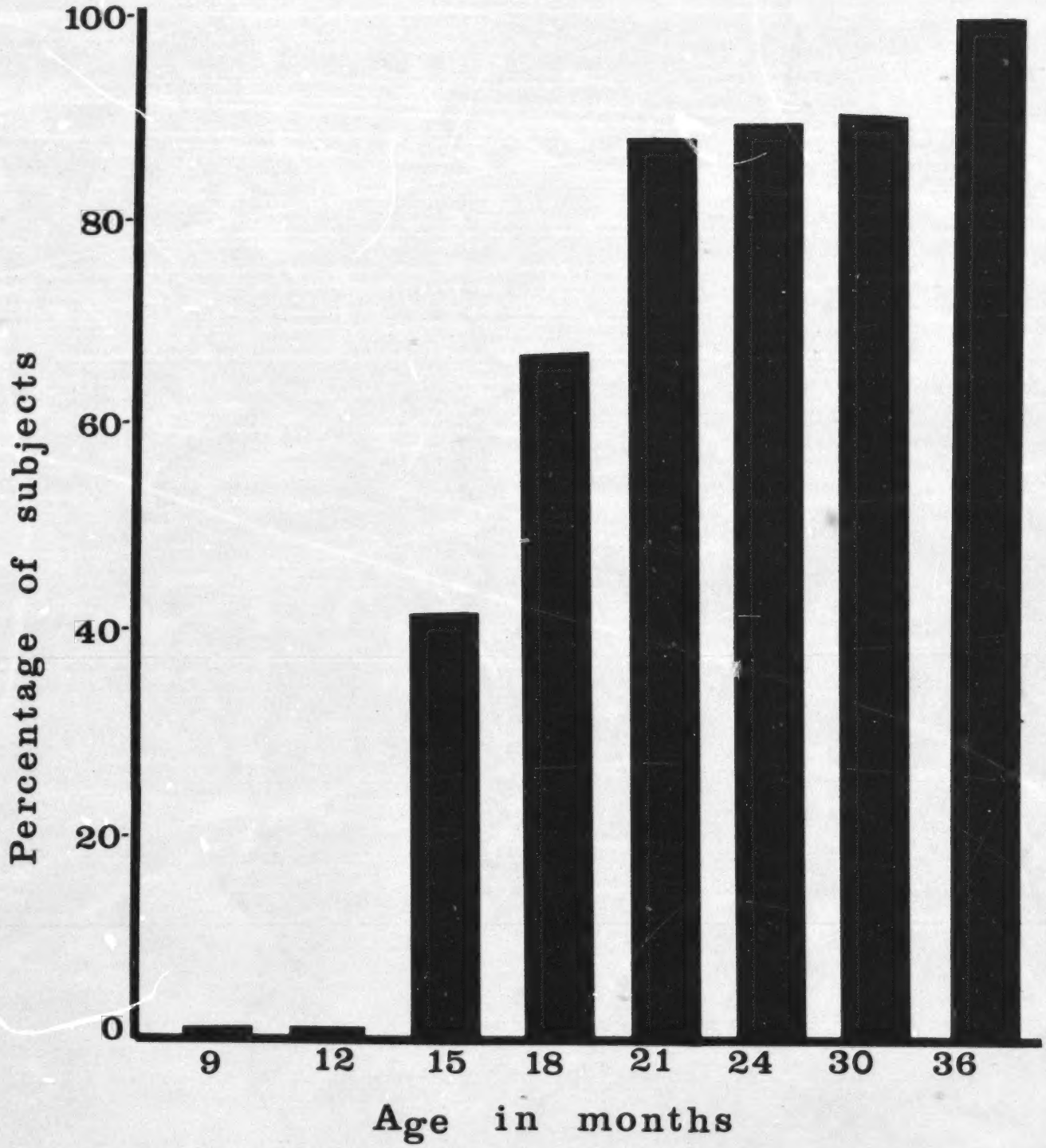

Figure 1. Percentage of all subjects who label at least one picture